

SEQUENCE LISTING

<110> The President and Fellows of Harvard College

<120> REGULATION OF BIOFILM FORMATION

<130> 00246/505W03

<150> 60/102,870

<151> 1998-10-02

<150> 60/083,259

<151> 1998-04-27

<160> 49

<170> FastSEQ for Windows Version 3.0

<210> 1

<211> 1090

<212> DNA

<213> Psuedomonas fluorescens

<220>

<221> variation

<222> (1)...(1090)

<223> n is a, t, c, or g.

<400> 1

gagcgcagna	gaggaagngn	gggagganga	ggaaggagga	gagnggaaga	aggggggaag	60
gggagggggg	aagggagagn	ggggagnngg	gggnatnngg	gannngggng	ggngngggnn	120
ntgnattatna	tnangctccg	gccggacgaa	gaaattcccc	atgcattgct	cgagcgcgta	180
ggcctgtctc	gggacaaggt	caaccacgta	ttcagcaaag	tgctcnaggc	ggaantgctg	240
ctgcgcgaac	tggcctcgca	nttcagccac	ggctgaatag	gctcgccccg	tcatttgatc	300
tttcccacgc	tctgcgtggg	aatgcacccc	gtgacgctct	gcgtcacatc	tcagaagcgg	360
aacgcggagc	gtccctggcg	acnttccnnc	ncagggagcg	tgggggaaccn	ancaaacntg	420
gtcccccaga	ttntaaagtt	cttccttaaa	ancttcttnc	gggcttccag	ggatattttg	480
tccanccccc	ttgggaaccc	anatccccca	ggcgcccccg	ggttgccccn	tttgatcctg	540
gggattccga	ctttgttcct	tgnaaatccc	cccttccatt	gaaaccnccc	angtttngcc	600
ttttgtttcc	ctttgggccc	ntnccaatcc	gntgnggcaa	aaacgccccat	tangggggcng	660
gggcggtccc	cccccccnng	nntgttactn	aantncanaa	cgccnnttgg	gccanaaann	720
tcgnctngng	nnnnnnncnnc	gnentctttn	ctncccntcc	nnnctntnnt	cctcngtgta	780
tntccaantc	ntnccnncgc	ccntccngcc	tccccactnc	ctnngeccctc	cnnnccnncg	840
cgttncattn	ctccnccntn	ntccgcttnt	ccccntttan	cgtngccggt	ncecgccccg	900
nnnnngtca	tcnntgnccg	tcttcenccc	nccctgtccn	cccantgecn	ngnnnctccg	960
aggctcgngg	tctcnccncc	nccngnttcg	tgcncnggcn	cnngatcccc	ttcnccnccg	1020
ncntnatgc	tgaccagtnn	gngngngtng	nnncctcccc	tcngnacntg	tntngngggg	1080
gggccccccc						1090

<210> 2

<211> 277

<212> DNA

<213> Psuedomonas fluorescens

<220>
 <221> variation
 <222> (1)...(277)
 <223> n is a, t, c, or g.

<400> 2
 ggnggggngg ggncttgtgt ataaatntca ggctctgaca tccaggccgc aggcggcctg 60
 gtcccnatgg ttatcgacca ntccgcccgc ggcnaangtg cctatnanat ctactcncgt 120
 ctgctcaang aacgcgtcat ctttctgggtg ggcccggtaa aagactacat ggccnacctg 180
 atctgtgcgc aactnttgtt cttgaancc naaaaccgcn acnaggatat ccatctctat 240
 atcaacnccc cnggtactag ttcaaccctg gaaaaaa 277

<210> 3
 <211> 819
 <212> DNA
 <213> Psuedomonas fluorescens

<220>
 <221> variation
 <222> (1)...(819)
 <223> n is a, t, c, or g.

<400> 3
 gctngtgtct acgcntcagc aanaatgccg cccgcgacna caacncttaa tcngctgaaa 60
 ntccattgga tgatgtcca cccgtccatc cnancctgga agccaggatt nctgcccgcac 120
 atnanggtnc ggggtggcaac aatctcaccg naacctgnnc ctgtggtcac aancgagggtt 180
 caggtcacca cggncgtccc ggcaccgggtt gccccnctgg tcaggccggg ccagggnncg 240
 gtngccccag angtcnatcc tccctttgac cctnaancng acccgcnena tgcntggcna 300
 ccnttgcntt tggcaatgga ccngggngga catnttnccg cccgtatcc agggcnencac 360
 ccaanantac ngccccggcg tccctctann ntntactatt cnacgcgtgg gcananntgc 420
 cctngtngg cttncctttc tcttccccgn cncctntttt tccccnnntt tttttgncgc 480
 gncccnctct cmtccctnc cttccnccnn centegtctn nnnccctngt gggcctcncc 540
 cctttntoct tccctccncc tttntctccg tggccctnct ctctgnttcc ncnngtngc 600
 gtccgggttan cccagcctcg ctctccnccg ctgnngcnct ctcttttctt gcttctctt 660
 cctgtggcc ctntgcgac ncnncnctt ctctcgctn nggtencanc cttcngtntc 720
 cgcnnngnnc gncnccctnc tctngcnccn nnntegtctt cgtnnnccng tncnncnncn 780
 ncagtcnngt gtngnnagnt tnnccnagtn tgnnatccc 819

<210> 4
 <211> 832
 <212> DNA
 <213> Psuedomonas fluorescens

<220>
 <221> variation
 <222> (1)...(832)
 <223> n is a, t, c, or g.

<400> 4
 gatggatatcg gtnactcggg caccgctggg gtgggtgctcg gaacagggttc tcgaagttcc 60
 cgccagtggc cttatcgatg ctgacttcaa ctttgcccgc gtctttgtag acgtcgtctt 120
 ttggtgcgtc gacagtcacg gtgcccgtcg tggcggccgc agcgatgttg atcaccgcgc 180
 cggtgtctcag ggtcacagt acagggcagc ccgcccgtt ggtcaagggt gcggtgtaaa 240
 cgatcgaacc gcttccgca acgctatcgg ttgcactcaa agtcaggccg gtagtgtcct 300
 gaatgtctgt nanngtgggt tngccgggg tggcgctcan gtccaatatt tcataattnc 360

naccntgggg	tctccannt	tnannctcaa	gttatcgccc	ccccccaaag	gctcctttng	420
cgtnacnaaa	ttcaccgann	ccganctggc	nccnaaccgg	aanggtgang	gtctggggccg	480
ttcnaacang	gttnnataac	caaacggaac	ntcgggtcac	cggtttcntt	taacngaagg	540
nggtgttnna	accncggncc	cnncttccgg	ccaangngng	aaattnnncg	gtggngggaa	600
aanaggtcna	ngtttttnaan	gggtttccng	tnancntcnt	nnnccccnan	ggntttnttn	660
ntnanaaaacc	aaanntcncc	ngaatttncc	nccnggtngg	nttttnncng	nannnnnggaa	720
nttnnnnggt	gggnnnnccn	ntcctttgtt	tnnaaaatna	nnctttttng	ggncnnnnnc	780
naaaagggnc	annngnggnc	cnnntggggn	ggnnnccnnn	gggnccnaag	nt	832

<210> 5
 <211> 1054
 <212> DNA
 <213> *Psuedomonas fluorescens*

<220>
 <221> variation
 <222> (1)...(1054)
 <223> n is a, t, c, or g.

<400> 5	
cncaanggc	60
gagagcacag	
gatatgcngc	
aatctcatgg	
acaaacggcg	
ccagcccnat	60
ggaggccacc	
gacnccacat	
ccgtcgcgcc	
ggtcgcttgc	
aggcncgcca	
acgcancctc	120
aaggttctgc	
gccanttgca	
ncnctncctc	
gcncaccanc	
cnnagttgcc	
agcncncaa	180
actccccacc	
ncnaanncnc	
ntnacnaaat	
nntgggtttc	
cgnataccgc	
ccncactcac	240
gcaccaattg	
ctcaccncg	
gcctgaacna	
actggtcggt	
ncnctncccg	
ccccatccnc	300
tggttnaaac	
nggcnattc	
cttnaccccc	
agcaacancn	
aataaccggg	
acctggccan	360
cnccgggtng	
ctcaccgggg	
cattaaactg	
cattttcaaa	
atatnnccgg	
ttggccacgc	420
ccgtnagggt	
gtcctgntag	
gatccnacc	
ccantttcnc	
tntgccccn	
ggngctgntcn	480
nggaannngn	
ccntgagctt	
tctcgaccat	
ctgggtttct	
tnctcntgcn	
cccactcncg	540
nnncaagttt	
taaggtnttn	
nctccgggna	
atcctctnng	
gcnaannnctt	
naactgnaaa	600
cttcnccga	
acngggncct	
aanantagnc	
ctatnngggg	
nnacnngcgt	
tgnccaaccn	660
aactnttttt	
ttttccagc	
cgcggggctn	
ttcaagtctn	
tgaacgnaac	
tcctcnngtc	720
nttccacang	
gnctcccc	
tantntntaa	
ccgcgtntcn	
tctatnttgg	
gngtccccgn	780
ntncatacat	
gcnaggtan	
aagaagctcn	
ancctcccna	
nnnggntctc	
cgccccccaa	840
ttntccccct	
ctctcccttt	
nancntctaa	
atatattctt	
tnntgggnnt	
naanaagggg	900
ggcgcanaaa	
nacctntctc	
cggggggggg	
tgtgggncc	
nnanaaaccc	
ccctttctnt	960
tntnnncccc	
cctccgnggg	
ggctccnccc	
tcctnttttg	
ttttccccnc	
ctannaatcc	1020
ctactcncng	
gnctagttga	
aaaaacanna	
acgc	1054

<210> 6
 <211> 880
 <212> DNA
 <213> *Psuedomonas fluorescens*

<220>
 <221> variation
 <222> (1)...(880)
 <223> n is a, t, c, or g.

<400> 6	
ncnnacgnnt	
ngnaagtgat	
caggccnatt	
aaacnnntga	
cnaaannaga	
acangnnngt	60
ctgttactac	
tcttcaagac	
caacccaagn	
cgaccgtgna	
tagcgnngcc	
tntacgcagc	120
atcngttccn	
cttagtagatt	
mntatccatc	
cmtaagtttc	
nccgggtcag	
aacgntnctt	180
gacgtacaac	
ccatanngcg	
gggtannngg	
nnatttttng	
ctacctcnca	
tgttttggaa	240
gnccnantnc	
ccnttaatng	
gnagcnnncn	
ncangcncnn	
ggggattatt	
acnactcnac	300

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ccntgganaa cnttgccact acngcnggnc ccccgcnngn tccnggnctc cccgtgcccac 360
ttcccttgtc tcccgncctc tntnccccct tttcnegten ncttctgggtg tncgnttccc 420
ctccccccng tectcnttca ncnncntngcg tctngggcac ctngnecgnnc tcttccctnc 480
tggccctct ncccccntt cgttntancc cctctctcna cntncttcat cccgtccctn 540
ttcttntctc cenctcnccn cctnttccta ntccntnctg cccnctnecgn tcntcgctctn 600
cctnccnccn ttntcgactt cnnctngttg ncccncccg ngngncttct ctngtcttct 660
cccgtcngcn gctcagnncc cntccttccn ttntctnctnn ctgtccgnen gcgnnccgtg 720
nccnecgncc cctagnnngg ncgcgcctcn gcnnccctcg cccnngntnt nntctttctg 780
cncgtgctc nntnttctn tntcnctcg cccatccnct nccctctntnn nncgtngntt 840
ccncttctag gncennattc cnannncng cctttncccc 880

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<210> 7

<211> 779

<212> DNA

<213> *Psuedomonas fluorescens*

<220>

<221> variation

<222> (1)...(779)

<223> n is a, t, c, or g.

<400> 7

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ncaanncaga tcctgnaaaa cgggaaaggt tccnttcagg tacgctactt gtgtataaaa 60
gtcagggccc aaacgccccca ggtgcaacaa ctggtcnaag gctacntggc gggttacaac 120
cgtgcgctgg tcnaacgcaa ggccaaaggc ctgcccnaac aatgtgccag cnaatgggta 180
cggccgatca cggcgctgga cctgggtcaag ttgacccgcc ggctgttggg ggaagggggc 240
gtcggccagt tcgcnangc cctggccggc gcgcaaccgc cccaggcnac cgcactcgcg 300
ggcaccgccg tcaccgggtt cgcggccgcc gcaaccggc agcagcnttt tgccctgaaa 360
cgcggcaaca atgcnttggg ccatcggan cnaacgctcg ttcaatgggc cgttnggaat 420
ntttgcttgg caaaccccc atttttcccg ttgggttagg cggcattcct tttctnacca 480
naaagcacct gaaccattcc cgggcaanct tggaaattct tgggccccng ngcctgccaa 540
ttttgccnaa aaatcaanat cgggttcaac cancncctt gcctggaacc aaaccgtcaa 600
aaactccaaa aaaattcccc cttncnctt gcaatcnctc naagaaccaa ccttttttn 660
ccaaggnatt tttttccna naaacnncaa angntttnt naattttacn acttaaggcc 720
anttnnaaag tncccaattt tttanngtcc aatttgnecc nattttaag gctccggtt 779

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<210> 8

<211> 848

<212> DNA

<213> *Psuedomonas fluorescens*

<220>

<221> variation

<222> (1)...(848)

<223> n is a, t, c, or g.

<400> 8

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gccnnnncn nattatncaa gntctaagtg ttnnaccana tnccaaggac ataatgactt 60
nccittatta antgtccgga ccatnccata tncaaccgtg canaccgtna acttnacca 120
ncatgnctcc gcntgtcgta tttatanncc ccataagctt cncccgtcag aacgtnncaa 180
taggtacant natactgcn ggcnatggc attttggtt tctttatgtt nggnagttn 240
aacagccttt ttatggagcg tccacagcta tagggggaaa ntctattca acntggcna 300
aantttgaaa aactnaganc ttcnnnggtt tataggggta tcccntgacc aaannccnct 360
aattccnact ctttgntccc acttccctcc tngcgcgnct ttaccnngng ccccgctcc 420
tccccnngn ncntnggnca cngggggaaa ngnnntcncc cgtgggttt ctccngtcn 480

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tngnnnnncc	tegtgnntcc	cggnnccctn	ccccccngtt	cggaactntt	ctccccctncn	540
ccnecgcgng	tgcgtctnnn	tnncccnngn	tnncnnggnt	tnncnngccn	ccntttcctc	600
ccccccccc	ttancngga	nccctctccc	tnccgntggc	cngccccccn	ggncctctcc	660
ctntnccctc	ggngnncnc	gnccgntcc	ttnncttcg	cctcctcenn	ccntcnnctc	720
cncctntcc	nncccncc	ctctnnntc	ccccntgccc	nnnncccg	ccnttcgntc	780
ctnnnnnnn	tnccgtngcc	cgcgtgcn	gtngcgnccc	gctntcctgc	ctgtcncccc	840
ccctnccc						848

<210> 9

<211> 533

<212> DNA

<213> *Psuedomonas fluorescens*

<220>

<221> variation

<222> (1)...(533)

<223> n is a, t, c, or g.

<400> 9

tatttgtgta	taagntcagc	gccagcagtg	accgatgtca	ccgataccat	cgacaccagc	60
accgtttcgc	tcacagcgac	ttcgacggtg	gccgaagggtg	ggactgtcgt	ttacaccgcc	120
tcgggttaacg	caccctgtgac	cgacgctccg	ttgggttatca	ccctgttcca	aacggccana	180
ccatcnccat	tcgggttggn	gccagcancn	gcaccgtgaa	cttcgtgaca	ccaaacgacg	240
ccctcgcggg	cggcgataac	ctgagcgtga	agattgatga	cgccaagggt	ggcaattacn	300
aaaaactgga	catcgacgcc	accccggcgg	acaccaccgt	taccgatntg	caggacacta	360
ccggcctgac	cttgantgca	accgatagcg	ttgctgaang	cggntcgatc	gtttacaccg	420
caacattgac	caacgccncc	ggntcgcctg	tcnctgtnac	cctgaacaac	ngngcgggtga	480
tcaacatccc	tgcgggngtt	tcccccccg	tnctantcta	cacgngngaa	aaa	533

<210> 10

<211> 591

<212> DNA

<213> *Psuedomonas fluorescens*

<220>

<221> variation

<222> (1)...(591)

<223> n is a, t, c, or g.

<400> 10

tgattgtgta	taagatcagc	cagcaaggcg	ccgtcgtcgg	gttggttaaag	ccccaccagc	60
aacttgcca	gggaactctt	gcccagagccg	ctgcggccaa	tgatgccnat	tttctcgccc	120
ggcttganca	ccaggtnnat	attctacacc	tngggnttct	gctgggttcgg	anaaatnaaa	180
nttcaactna	nngnattcca	acggccccctt	ccagaacttt	cnggtcangg	ggngctcntc	240
caaattgcgc	tcttggggca	gctccntcat	ctggctcgana	ganatcttgg	tcaccccccc	300
ctgttggtat	cgggtentca	ngcccnacaa	cnaaaccaac	nggctgaggg	cgcgaccgct	360
gaacatntnt	cangcgacca	nccccccnt	gctcangcna	ccggcgatna	tcaagtntac	420
nccnaaaana	anatgaccac	cccngccagt	tnctggatca	acaaagtgat	gttctttgcc	480
nggcgggana	acatcttcac	ccccanttct	aagcggctga	aggtgccgat	agtctgttcc	540
cnetggtatt	ggcgtncnc	ccccntact	antcaacn	tggnaaaaaa	a	591

<210> 11

<211> 1249

<212> DNA

<213> *Psuedomonas fluorescens*

<220>
 <221> variation
 <222> (1)...(1249)
 <223> n is a, t, c, or g.

<400> 11

ctgggtgtat	aagatcaggg	ccantngtgt	cctggagtgt	ctgtnacagt	ggtttcggca	60
ngcttgccct	cnaatncan	tttttcgtaa	ttgccaccct	atggcctnct	ccnaatttga	120
ancacnagnn	acctnccan	tgncaagggc	ttcttcngcn	tcnngaaatt	canccnacnn	180
naaatngggc	caacctgan	tggttaccgt	cntgcccgcnc	ccnctcnggn	catttctctg	240
ccnaagcntc	ccggtncctn	gnttgccctc	taacccaagc	gncngntntn	nancnncctt	300
gtttcncccc	tncngncna	cgggtggaan	ggtttttccc	ccntaggggc	ctcnnttntt	360
tctaaancgc	ttttccagaa	aaaggcctgc	ccggtntacn	ccttcttann	tnctgctcgc	420
tccnagngct	tatcnccttc	tncccccttc	ggatactnct	ctgtaagttt	ccctaaaatc	480
nnctggntng	gnttctnncn	anaaagaana	tctntggggg	ctttntntnt	tatatcctct	540
cntattgtnc	tttncnntan	cntctntecn	ngannctcat	tcccganacc	ctctnnnnnc	600
cgccttnenc	tctcntatan	tttctnagtt	gaaccgctcn	tcccncnca	ctnttattnn	660
ntnngcgggn	cgcncncttt	gtccctcntt	aacctgagg	ntngcgagcn	tacnggctcn	720
ctccctaata	ctctggggcg	tnnngggggc	nacgtccctc	ccttcggtcn	naaatnnttc	780
ntaanttcca	acntcngcn	gccccgctcc	ggnnnnnnca	atntntcttc	ccccctattc	840
tnngctacna	gcgngtgatn	atccccntct	cannagcctn	ttcnggggat	aacngngnag	900
ngannctctc	tcttttagtnc	cnnaancna	tctctnctcc	tcttcttcng	gtcgcgctnc	960
tanancnctg	gtcagttnnn	tcctcnatgn	nnennaggnt	cccnnntnct	cnetcncttc	1020
ttgnnnactc	ccngtntgtc	cnggantggn	tcttcgcgct	cggnanncnt	gtcctntnt	1080
tencnanncg	aanantctcc	ttncctaacac	nccttcgccc	aanacntttt	nactctnccc	1140
tctnctctcn	ctnnctcgtc	tnattntnan	ttncntnctc	anncngtgac	tcgttagcnc	1200
tccgntcttt	ccnantcttc	gccccntct	ccnncctcna	nnctatccc		1249

<210> 12
 <211> 373
 <212> DNA
 <213> Psuedomonas fluorescens

<220>
 <221> variation
 <222> (1)...(373)
 <223> n is a, t, c, or g.

<400> 12

tnattgtgta	taagntcagg	actagagntc	ctctcttagt	nacggttcgc	agcgttttgc	60
accgcacgt	ccantgcgt	ccccaccccg	tactagtcga	cacgtggana	aactcgcgcc	120
gagtcgaac	gtgggtanta	gtcgaagcgt	ggnganggnt	cncgntatna	ggcntaan	180
ctgcatcac	aaagcngggg	gaaggttctc	naaaanttcn	ccnatgaggg	agaacacgga	240
aancccttta	ccncaggggc	ggcccngaaa	tctggcaacn	gancggnnng	agaatcnccc	300
atttcgtcag	ctccatgggc	accaccggga	acatcatggg	cgtcnntnct	cngtactant	360
cgaccgtggc	caa					373

<210> 13
 <211> 683
 <212> DNA
 <213> Psuedomonas fluorescens

<220>
 <221> variation
 <222> (1)...(683)

<223> n is a, t, c, or g.

<400> 13

tgactgtgtg	ttataagntc	agncgacant	ggnagtcenc	ntntgggttg	tangatccgc	60
ancnattaag	ctggccnngg	gaaantcngg	ttcaacccgn	tgcngncaat	ganncnntat	120
ttcactcncc	cggcgtncac	ncctnngtan	tantcgaccc	ntggncanta	ntantctaca	180
nntgggtcaaa	acntttcgan	nnngtaggng	ncgccctntn	tanangtnan	cttcgtnacg	240
ggggaggaaa	angctccccg	gngggccannn	gccgagccta	aaaaangagg	cangtanggg	300
tngaaaaaaa	naatanctng	atangacncc	accnntttg	acgccaatta	accgangtac	360
angaccnngn	cnaactcatt	ttnagtgtnc	gcgacagaaa	ttttnanggn	cgcncangn	420
gaanggttct	cnanggtttt	gnaaannnaa	acnaggccct	ccnntaaatg	gtggacccgc	480
ggnnaanntt	nnccncgant	ggggttttga	aattactttt	caacaatctt	caaaacntcc	540
gggtcnancc	aggaggggnc	aaaaaaaaaa	tnttttccgn	gtngccnnaa	aaatatccna	600
aattttntcn	ccccccccc	nccnnaaaag	aagggngggg	gggaagggga	aaaagggggg	660
aangaggggg	gggaaggggg	ggg				683

<210> 14

<211> 672

<212> DNA

<213> *Psuedomonas fluorescens*

<220>

<221> variation

<222> (1)...(672)

<223> n is a, t, c, or g.

<400> 14

gtgcttgtgt	ataagntcag	nccctggcct	gngcgncnac	aactccggtn	nccgtctaca	60
ntttagcnaa	ggatcggtca	ttgcctngtc	tntctggntan	actnccggga	cnatccacct	120
caatactccn	nccattnacg	tctatggtaa	ccngggaggtc	ggtcancagn	ncnattaccg	180
gtntaccng	tggaaacttc	gaaaatctng	tggcnaacac	gggacctgcg	gtccccncca	240
nttccgattc	ngnganacn	ncatggntgt	cncnnaacngg	nngcnacncc	attcctgnan	300
ggnggccaan	ttcctttcnc	ntcaanccgt	nggnaacggg	ccnaatncc	gtnaacgtta	360
ccnnnganaa	atggctngtt	ttccattccc	ccgggggnan	aaaccgggac	ngaagatttc	420
aanaccgcg	cntntnattn	taccnngggg	nnngcgggtc	gncccccn	nnacnngtga	480
naangggggg	ctnttcaaan	ttcntngtgt	tnancacnac	cctgggggtt	natantantt	540
ncanaattnc	ggngngaana	ccaccggggc	ttnannnctt	nnaacnggnc	nnncnaccnn	600
ctttccnnnn	ngggggggng	ttccnnnnc	ccccnttnn	nttnnttttn	aaannttttt	660
gggggaaaaa	aa					672

<210> 15

<211> 1676

<212> DNA

<213> *Psuedomonas fluorescens*

<220>

<221> variation

<222> (1)...(1676)

<223> n is a, t, c, or g.

<400> 15

tgcttgtgta	taagatcagg	gcccgnccgc	nccnnantta	ngtctgggtc	aacgacacnn	60
catnggtgcn	gtggnanctc	antttacnag	gcncctaaaa	ngcatnattg	ttatncagtn	120
ngncgaggtg	gntcctcccn	tanccgaagn	natntgnnaa	cttggaanga	tttnancntt	180
ttccantcgg	tngntaccag	nngtgantcn	tcantttctg	acaccnctg	gtnncnntcc	240

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tggtcacncc tanannngac cncctctctcc gntgnggggcc tggngcntaa tatnntaccg      300
gctttnnant gctgtcagta tnantctcgn nagcngnaaa ntncctctnc annccgtgtn      360
tntngtctcn cncctctctc nctcntacac tcaactnactn tntnctgnaa atcnntctnn      420
ctgtantatc acggncancn cgttctntgt ggggctcnc tganaggctc cccctnacct      480
ctctannnac ngtgctcggt atnnncctat aanagtcttg tgcagtntc acagtnacat      540
cgctgcnnnn cncgngtagc tctgcatcnt cgcccttttn tttctnttct ctengcaaan      600
atcttntnt ctctcnntcn atcattattc ncangecngg gggctcctnt cccctcnnn      660
nctcngtte nanacangtc ntnttttagct atgtcttatg tncncctntc anttttntcn      720
cncctcncac ncttcagann ggctnngnct gacctctata gtcgntctc tctcctctc      780
nctnntctct cngcnataac gcnctnncnc ttctggnetc tcnngetctc tntnntata      840
tccnncgecn nttctctcta tctctccgnt ntgtgctct caattgtncn ctctctcgtn      900
cnnctgtcnn ntctancgtn ttcttgactt nannaatacn tacctctctt ngcctctctn      960
cntntnctct cncgcgcatc ctnggaccgc tncctctgcn cngcgcnatc tcttcttnc      1020
gttctcnnnt tctcgcgnt ctctnngtac tngcttttcc cncctacctnt ctcttgctcc      1080
tctctcgct cncctnctc tctcttctct ntctangtcn ncncgnccat nggctttctc      1140
tcgctnctnt tncctcttct ntctntnccg tctcgtctng atcnntctct catcatntc      1200
tntntntca tcangetntn tgncaactctc cnatctgnt ctctntctta ntntccntc      1260
cttctnttc tcttanctcn cgtnnatnnc nttctctgat ntcctcnagt atntctatgt      1320
acgctnnct tnatcngnnc cctntctcta tcancatcat nctagctnnc ttcctatngt      1380
cctgctctca ctntttctgc cnanatatnn atcnctnctc tntatcttcn tanattntn      1440
cctntnaatg tttanaaatg ctctactcna nctctctntn tctnnnctc cagntcactc      1500
tctananngt cctnncgta tacgntctn tncgctttan tgcgtntnct atcantnccg      1560
ctctttntt ctctctcnc cntgtntctn ncacactntc ttcctctct ctcnnatatn      1620
natgctnntc tatnccnct tctatgctnt cncctntcna nccacantnt nntctc      1676

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<210> 16
<211> 721
<212> DNA
<213> Psuedomonas fluorescens

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<220>
<221> variation
<222> (1)...(721)
<223> n is a, t, c, or g.

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<400> 16
tncttggtgta taagatcagg cctatngccg nctgnggntt ntctgggtgc negacgcgcc      60
attcgaaaaa ancagctccg nnaccngttc caantacacn nngttgtncn nccgnagttc      120
cagcttcngc ctgcgcnaag tnnacaattc ctncnaaacc ctgggtgtgn tnttcennna      180
gctnatgtan ganngtcnat nggncgtgnn gnactgtct accnagnenc angtnngcac      240
caaccngagc ntcattcncg cnnacnncga accccgngng natcgcttct ntccnaacnc      300
cnncaantcc aacnccatng gttgtgttgn cnacgacnng ngcgaaaacn ncgcncacnn      360
ngnccnagtc aagttcccg atacccacag cnggtcnggg ggtntcnccc cctntcntgt      420
tccaaacatn nccatanaan nnnnggtntg ctgggggaat ccaancntc nncgtngggt      480
cgatcnaaac aanatanggg tcaangnncn gccacttgcn tnatnaattt cnncagtgcc      540
cntnnctnnc tgatnngcna agccnncnnn gggttggngg gggnnnttnc cennntatna      600
antanaaacg gcngntcct tnnccnccan ggggtgnttgn ngnttttnaa aacnctttt      660
nnnnaaanan ccccccncct ntttncnng gannannatc cnnaaanann gttccnccc      720
c

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<210> 17
<211> 452
<212> DNA
<213> Psuedomonas fluorescens

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<220>
 <221> variation
 <222> (1)...(452)
 <223> n is a, t, c, or g.

<400> 17
 atnnngnnnn tncctgtgta taagntcagg gcncncctn tcnnaacttn gtctgggtcg 60
 ngctacacnn cannggnnac tggcagctcg gtnaccgcta cctnanaacg cttcantgtt 120
 cctcagcngg tccacgtcca gccttgagcc acatgtnaaa anncngccna caanccnngg 180
 ngtnaanntc cacgnntgc ncgacgantg ccaatnnaan nttctcnacn gtttcacctg 240
 gaangacctt gccganaccn anacnntcac caanggtgaa nncaactccc ggnagatncg 300
 ctncacncn gaccccaacg aatcctncgc cgnnggtttt nttagcanca tcgncgncan 360
 caaccangnc canttcnccc cgnnttcatt cennccnanc gacggnnnnt ctgggcgctc 420
 cccccccgt actantctac ncntnncaaa aa 452

<210> 18
 <211> 442
 <212> DNA
 <213> Psuedomonas fluorescens

<220>
 <221> variation
 <222> (1)...(422)
 <223> n is a, t, c, or g.

<400> 18
 tncctgtgta taagntcagg ntctnagatg agctcggtag ttcangagnt tttctgcgac 60
 cgcgnnnccg acgnctgnaa tcgntggcna ggtnggcnta nacannnnaa agtanncccc 120
 tcgaancgnt cnntgacctc ctgntccaaa tngtcacng cattggncga cgcnnngcna 180
 ccnncactt cgtcgaant cccaaaancn gcttgggccc ngcncgncng gattnngccc 240
 gacatcnnt nancaaannt cccncccgcn tactngncca nccttgacca nnttttgcn 300
 tcctntcctt actgggtcng cttcgntccc ggnttgctna ccannatggt ccnaancctg 360
 ctgtcctnca ctctcaaatn cgcccccggc caacctgct gatcgnttc nncncccnag 420
 tncatttcaa cccctgcccc aa 442

<210> 19
 <211> 538
 <212> DNA
 <213> Psuedomonas fluorescens

<220>
 <221> variation
 <222> (1)...(538)
 <223> n is a, t, c, or g.

<400> 19
 ctttgttgta taagnatcag acactagagc ttgccccttc tncancnctt cnatggacag 60
 cggctttcgg gccgtcgagc aacgatctgt ccacagttna ncaccannag gcgntccacc 120
 atcaanagaa agganncneg gtnentnacc acnnacacan gtcttggtat cnaccacggc 180
 agccaagcgn tgtttcaaac gttcttcagc ngtgttgccc atggatctgg ttgggtcgtc 240
 caanaacaag ataggcgtgt tnancncnt ncnactngac acgtggaaat tntngctcta 300
 accncccgac angttctgtc nncnctcncc naatnnnaat tcataacctt ncngatgccn 360
 gggggcaaat tcatncncnc ccgccanttc acggnctgga acacanttea actncnacgt 420
 ttenggcgcc naaaantctt gttgtcnccc aggnntttnn nancancnng atntntttgg 480
 ggnnccttnc cnaanttntt nnnennctcc cntnannttg aanntngnng gatgttna 538

<210> 20
 <211> 218
 <212> DNA
 <213> *Psuedomonas fluorescens*

<220>
 <221> variation
 <222> (1)...(218)
 <223> n is a, t, c, or g.

<400> 20
 tnattttgtgt ataagttcag gttgctngnt gnacgccatc ccggccaagg gttgccggcg 60
 tcacccacat ngtagtagtc nncgcgtggc cnaaacgggtg angtctncta attgatgctt 120
 gccaacgntt naaaaaaaaaag tatngacagg gtnttaacca tcagnttntn ccnaaangta 180
 ctagtctacc cgtggccana naantnnann nntggnc 218

<210> 21
 <211> 642
 <212> DNA
 <213> *Psuedomonas fluorescens*

<220>
 <221> variation
 <222> (1)...(642)
 <223> n is a, t, c, or g.

<400> 21
 tncctttgtgt ataagntcag gccccgggggt ancgncagta ngntngncga ncggtcctg 60
 caagctgncg gcgnanattc ngcgtncct cttntgcnt ctgaaatgca ttccccctcn 120
 atgagtcggc tgtcttcang gttnggntgg ttncacatc catcancttg ntctcncctg 180
 ttaccccgnc ngtnncctgc gcacctctca gaccnggatn ccggtncanc acccctagt 240
 tctaanaacg taccangaan aangaacacc cgctcgcggtg tgggcctact tcacctatcc 300
 tgcccggtg acgcccgttg atacaccaag gaaagtctac acnaaccctt tggcaaaatc 360
 ctgtntatcg tgcgaaaaan gatggatata ccgaaaaaat cgctatantg acccncantc 420
 anggttnttg caacggaaaa ncnctncttc cctgctgttt tgtggaatat ctaccgactg 480
 ganacaggcc aatgcatgaa attactgaac tgaagggaca agcaaaaaac catccaanna 540
 actncacca cnaactggcc gagtnggttt naatccccgc gccggccaaa aaacgccngc 600
 attaannaan gcnggttggt tctnttntc gnnnaaanaa aa 642

<210> 22
 <211> 583
 <212> DNA
 <213> *Psuedomonas fluorescens*

<220>
 <221> variation
 <222> (1)...(583)
 <223> n is a, t, c, or g.

<400> 22
 tattgtgtat aagatcagnc cagcngtggt cntacagntg ggacaggcgg cgctcgcaagc 60
 ttccccctga gtgntgntcc agnnatanag agncntgntg gttataaaca aancacggnn 120
 atcgataaac nccgttcgtg acgncgtatc gccanactcn naatnccgna aacgggtnga 180
 aatccgtaat ccaagtgtta tcntgncgg gatgttctag agcaactcca tcatctntac 240
 aancttggtc gancttgta tggcacctcc actgagacaa cggtgtntc aatagtcanc 300

acnccccctnn	ccccnggga	gganatntnt	cncctggnncc	acncnancan	catctttaac	360
gnatatttct	tntttatcag	cccnnttggt	taccnntgc	gtcattgggt	ggntgcagcg	420
acaacncccg	gagaaancna	tttncctggg	nggctctcn	atcatcngca	ccnccccca	480
aattganaag	gtcgcgccnc	nccnngagan	acnntanccc	angtcggccn	tcnncangtg	540
cgtggcgctc	ccncccgtn	ctantcnacc	cttnccagnc	caa		583

<210> 23
 <211> 360
 <212> DNA
 <213> *Psuedomonas fluorescens*

<220>
 <221> variation
 <222> (1)...(360)
 <223> n is a, t, c, or g.

<400> 23	
tctttaanta	gnaccgaaga ntctectan caccctaac cagtcnacgg ctngtggcga 60
ctggatatng	acactngacc aggtcggggc ntnccccac nntnctatt caacgcttgg 120
ccaaacacgt	ggtcnatct ctncacagtg cccctctan cnttctccga tacactntc 180
ttcttccaat	atcccccgct aatccccctc catcngtgaa nnggccccgc tccattaaaa 240
agcatngngc	nnacaaacaa ccngagatcn tcnntntnn canncctccc gntccctcaa 300
atttcggnag	gggnccggtt gcgaccnnaa accgntccn ngnggnaaat ttcttnentt 360

<210> 24
 <211> 494
 <212> DNA
 <213> *Psuedomonas fluorescens*

<220>
 <221> variation
 <222> (1)...(494)
 <223> n is a, t, c, or g.

<400> 24	
tncttggtga	taagntcagg cgcaggcgng accgcactan ctatgtgang ngctctcngt 60
cggngnnnca	ggcnatgcc gtcattgtcc atntgcngac naccctacta ctctntngcn 120
tgancatgac	tgccggggcg anaagttgcg cattgtcacc taaccctggg cgcctgtatg 180
tctncnaaaa	naactgcaag atgctggggc tggactacna aaccacggcc atcgtgttca 240
agcnccctggg	tntcgacgtg gaatggcagt tctgcccgtg gaancgctgc ctgggtgatgc 300
tggancaggg	gttggcgtag cgnnccccngt acnnttnnac ccntgnnnaa ancnatnccn 360
tgcncttta	ccccnnncaa ncnctntcng acntggaatt tgtgatnttc tacnccnatg 420
ccnccccca	tcnttttcgc ncnncnata anctggngn cccncccc gtnntantcn 480
acctgggna	anaa 494

<210> 25
 <211> 23
 <212> DNA
 <213> *Escherichia coli*

<400> 25	
gaacgttacc	atgttaggag gtc 23

<210> 26
 <211> 35

<212> DNA
 <213> Artificial Sequence

<220>
 <221> variation
 <222> (1)...(35)
 <223> n is a, t, c, or g.

<223> Random sequence

<400> 26
 ggccacgcgt cgactagtac nnnnnnnnnn gatat 35

<210> 27
 <211> 20
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Random sequence

<400> 27
 ggccacgcgt cgactagtac 20

<210> 28
 <211> 24
 <212> DNA
 <213> Escherichia coli

<400> 28
 cgggaaaggt tccgttcagg acgc 24

<210> 29
 <211> 35
 <212> DNA
 <213> Escherichia coli

<220>
 <221> variation
 <222> (1)...(35)
 <223> n is a, t, c, or g.

<400> 29
 ggccacgcgt cgactagtac nnnnnnnnnn acgcc 35

<210> 30
 <211> 17
 <212> DNA
 <213> Escherichia coli

<400> 30
 caggctctcc cgtggag 17

<210> 31
 <211> 17

<212> DNA
<213> Escherichia coli

<400> 31
ctgcctccca gagcctg 17

<210> 32
<211> 23
<212> DNA
<213> Escherichia coli

<400> 32
gcttccttta gcagcccttg cgc 23

<210> 33
<211> 24
<212> DNA
<213> Escherichia coli

<400> 33
cttccatgtg acctcctaac atgg 24

<210> 34
<211> 595
<212> PRT
<213> Escherichia coli

<400> 34
Met Ala Gln Val Ile Asn Thr Asn Ser Leu Ser Leu Ile Thr Gln Asn
1 5 10 15
Asn Ile Asn Lys Asn Gln Ser Ala Leu Ser Ser Ser Ile Glu Arg Leu
20 25 30
Ser Ser Gly Leu Arg Ile Asn Ser Ala Lys Asp Asp Ala Ala Gly Gln
35 40 45
Ala Ile Ala Asn Arg Phe Thr Ser Asn Ile Lys Gly Leu Thr Gln Ala
50 55 60
Ala Arg Asn Ala Asn Asp Gly Ile Ser Val Ala Gln Thr Thr Glu Gly
65 70 75 80
Ala Leu Ser Glu Ile Asn Asn Asn Leu Gln Arg Ile Arg Glu Leu Thr
85 90 95
Val Gln Ala Ser Thr Gly Thr Asn Ser Asp Ser Asp Leu Asp Ser Ile
100 105 110
Gln Asp Glu Ile Lys Ser Arg Leu Asp Glu Ile Asp Arg Val Ser Gly
115 120 125
Gln Thr Gln Phe Asn Gly Val Asn Val Leu Ala Lys Asp Gly Ser Met
130 135 140
Lys Ile Gln Val Gly Ala Asn Asp Gly Gln Thr Ile Thr Ile Asp Leu
145 150 155 160
Lys Lys Ile Asp Ser Asp Thr Leu Gly Leu Asn Gly Phe Asn Val Asn
165 170 175
Gly Ser Gly Thr Ile Ala Asn Lys Ala Ala Thr Ile Ser Asp Leu Thr
180 185 190
Ala Ala Lys Met Asp Ala Ala Thr Asn Thr Ile Thr Thr Thr Asn Asn
195 200 205
Ala Leu Thr Ala Ser Lys Ala Leu Asp Gln Leu Lys Asp Gly Asp Thr

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      210              215              220
Val Thr Ile Lys Ala Asp Ala Ala Gln Thr Ala Thr Val Tyr Thr Tyr
225              230              235              240
Asn Ala Ser Ala Gly Asn Phe Ser Phe Ser Asn Val Ser Asn Asn Thr
      245              250              255
Ser Ala Lys Ala Gly Asp Val Ala Ala Ser Leu Leu Pro Pro Ala Gly
      260              265              270
Gln Thr Ala Ser Gly Val Tyr Lys Ala Ala Ser Gly Glu Val Asn Phe
      275              280              285
Asp Val Asp Ala Asn Gly Lys Ile Thr Ile Gly Gly Gln Glu Ala Tyr
290              295              300
Leu Thr Ser Asp Gly Asn Leu Thr Thr Asn Asp Ala Gly Gly Ala Thr
305              310              315              320
Ala Ala Thr Leu Asp Gly Leu Phe Lys Lys Ala Gly Asp Gly Gln Ser
      325              330              335
Ile Gly Phe Asn Lys Thr Ala Ser Val Thr Met Gly Gly Thr Thr Tyr
      340              345              350
Asn Phe Lys Thr Gly Ala Asp Ala Gly Ala Ala Thr Ala Asn Ala Gly
      355              360              365
Val Ser Phe Thr Asp Thr Ala Ser Lys Glu Thr Val Leu Asn Lys Val
370              375              380
Ala Thr Ala Lys Gln Gly Thr Ala Val Ala Ala Asn Gly Asp Thr Ser
385              390              395              400
Ala Thr Ile Thr Tyr Lys Ser Gly Val Gln Thr Tyr Gln Ala Val Phe
      405              410              415
Ala Ala Gly Asp Gly Thr Ala Ser Ala Lys Tyr Ala Asp Asn Thr Asp
      420              425              430
Val Ser Asn Ala Thr Ala Thr Tyr Thr Asp Ala Asp Gly Glu Met Thr
435              440              445
Thr Ile Gly Ser Tyr Thr Thr Lys Tyr Ser Ile Asp Ala Asn Asn Gly
450              455              460
Lys Val Thr Val Asp Ser Gly Thr Gly Ser Gly Lys Tyr Ala Pro Lys
465              470              475              480
Val Gly Ala Glu Val Tyr Val Ser Ala Asn Gly Thr Leu Thr Thr Asp
      485              490              495
Ala Thr Ser Glu Gly Thr Val Thr Lys Asp Pro Leu Lys Ala Leu Asp
      500              505              510
Glu Ala Ile Ser Ser Ile Asp Lys Phe Arg Ser Ser Leu Gly Ala Ile
      515              520              525
Gln Asn Arg Leu Asp Ser Ala Val Thr Asn Leu Asn Asn Thr Thr Thr
530              535              540
Asn Leu Ser Glu Ala Gln Ser Arg Ile Gln Asp Ala Asp Tyr Ala Thr
545              550              555              560
Glu Val Ser Asn Met Ser Lys Ala Gln Ile Ile Gln Gln Ala Gly Asn
      565              570              575
Ser Val Leu Ala Lys Ala Asn Gln Val Pro Gln Gln Val Leu Ser Leu
580              585              590
Leu Gln Gly
      595

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<210> 35

<211> 119

<212> PRT

<213> Escherichia coli

<400> 35
 Met Gly Ile Met His Thr Ser Glu Leu Leu Lys His Ile Tyr Asp Ile
 1 5 10 15
 Asn Leu Ser Tyr Leu Leu Leu Ala Gln Arg Leu Ile Val Gln Asp Lys
 20 25 30
 Ala Ser Ala Met Phe Arg Leu Gly Ile Asn Glu Glu Met Ala Thr Thr
 35 40 45
 Leu Ala Ala Leu Thr Leu Pro Gln Met Val Lys Leu Ala Glu Thr Asn
 50 55 60
 Gln Leu Val Cys His Phe Arg Phe Asp Ser His Gln Thr Ile Thr Gln
 65 70 75 80
 Leu Thr Gln Asp Ser Arg Val Asp Asp Leu Gln Gln Ile His Thr Gly
 85 90 95
 Ile Met Leu Ser Thr Arg Leu Leu Asn Asp Val Asn Gln Pro Glu Glu
 100 105 110
 Ala Leu Arg Lys Lys Arg Ala
 115

<210> 36
 <211> 295
 <212> PRT
 <213> Escherichia coli

<400> 36
 Met Leu Ile Leu Leu Gly Tyr Leu Val Val Leu Gly Thr Val Phe Gly
 1 5 10 15
 Gly Tyr Leu Met Thr Gly Gly Ser Leu Gly Ala Leu Tyr Gln Pro Ala
 20 25 30
 Glu Leu Val Ile Ile Ala Gly Ala Gly Ile Gly Ser Phe Ile Val Gly
 35 40 45
 Asn Asn Gly Lys Ala Ile Lys Gly Thr Leu Lys Ala Leu Pro Leu Leu
 50 55 60
 Phe Arg Arg Ser Lys Tyr Thr Lys Ala Met Tyr Met Asp Leu Leu Ala
 65 70 75 80
 Leu Leu Tyr Arg Leu Met Ala Lys Ser Arg Gln Met Gly Met Phe Ser
 85 90 95
 Leu Glu Arg Asp Ile Glu Asn Pro Arg Glu Ser Glu Ile Phe Ala Ser
 100 105 110
 Tyr Pro Arg Ile Leu Ala Asp Ser Val Met Leu Asp Phe Ile Val Asp
 115 120 125
 Tyr Leu Arg Leu Ile Ile Ser Gly His Met Asn Thr Phe Glu Ile Glu
 130 135 140
 Ala Leu Met Asp Glu Glu Ile Glu Thr His Glu Ser Glu Ala Glu Val
 145 150 155 160
 Pro Ala Asn Ser Leu Ala Leu Val Gly Asp Ser Leu Pro Ala Phe Gly
 165 170 175
 Ile Val Ala Ala Val Met Gly Val Val His Ala Leu Gly Ser Ala Asp
 180 185 190
 Arg Pro Ala Ala Glu Leu Gly Ala Leu Ile Ala His Ala Met Val Gly
 195 200 205
 Thr Phe Leu Gly Ile Leu Leu Ala Tyr Gly Phe Ile Ser Pro Leu Ala
 210 215 220
 Thr Val Leu Arg Gln Lys Ser Ala Glu Thr Ser Lys Met Met Gln Cys
 225 230 235 240
 Val Lys Val Thr Leu Leu Ser Asn Leu Asn Gly Tyr Ala Pro Pro Ile

				245					250					255			
Ala	Val	Glu	Phe	Gly	Arg	Lys	Thr	Leu	Tyr	Ser	Ser	Glu	Arg	Pro	Ser		
			260					265					270				
Phe	Ile	Glu	Leu	Glu	Glu	His	Val	Arg	Ala	Val	Lys	Asn	Pro	Gln	Gln		
		275					280					285					
Gln	Thr	Thr	Thr	Glu	Glu	Ala											
	290					295											

<210> 37

<211> 308

<212> PRT

<213> Escherichia coli

<400> 37

Met	Lys	Asn	Gln	Ala	His	Pro	Ile	Ile	Val	Val	Lys	Arg	Arg	Lys	Ala		
1			5					10						15			
Lys	Ser	His	Gly	Ala	Ala	His	Gly	Ser	Trp	Lys	Ile	Ala	Tyr	Ala	Asp		
			20				25					30					
Phe	Met	Thr	Ala	Met	Met	Ala	Phe	Phe	Leu	Val	Met	Trp	Leu	Ile	Ser		
		35				40					45						
Ile	Ser	Ser	Pro	Lys	Glu	Leu	Ile	Gln	Ile	Ala	Glu	Tyr	Phe	Arg	Thr		
	50				55					60							
Pro	Leu	Ala	Thr	Ala	Val	Thr	Gly	Gly	Asp	Arg	Ile	Ser	Asn	Ser	Glu		
65				70					75					80			
Ser	Pro	Ile	Pro	Gly	Gly	Gly	Asp	Asp	Tyr	Thr	Gln	Ser	Gln	Gly	Glu		
			85				90						95				
Val	Asn	Lys	Gln	Pro	Asn	Ile	Glu	Glu	Leu	Lys	Lys	Arg	Met	Glu	Gln		
		100					105						110				
Ser	Arg	Leu	Arg	Lys	Leu	Arg	Gly	Asp	Leu	Asp	Gln	Leu	Ile	Glu	Ser		
		115				120					125						
Asp	Pro	Lys	Leu	Arg	Ala	Leu	Arg	Pro	His	Leu	Lys	Ile	Asp	Leu	Val		
	130				135						140						
Gln	Glu	Gly	Leu	Arg	Ile	Gln	Ile	Ile	Asp	Ser	Gln	Asn	Arg	Pro	Met		
145				150					155					160			
Phe	Arg	Thr	Gly	Ser	Ala	Asp	Val	Glu	Pro	Tyr	Met	Arg	Asp	Ile	Leu		
			165			170							175				
Arg	Ala	Ile	Ala	Pro	Val	Leu	Asn	Gly	Ile	Pro	Asn	Arg	Ile	Ser	Leu		
		180				185						190					
Ser	Gly	His	Thr	Asp	Asp	Phe	Pro	Tyr	Ala	Ser	Gly	Glu	Lys	Gly	Tyr		
	195				200						205						
Ser	Asn	Trp	Glu	Leu	Ser	Ala	Asp	Arg	Ala	Asn	Ala	Ser	Arg	Arg	Glu		
	210				215						220						
Leu	Met	Val	Gly	Gly	Leu	Asp	Ser	Gly	Lys	Val	Leu	Arg	Val	Val	Gly		
225				230					235					240			
Met	Ala	Ala	Thr	Met	Arg	Leu	Ser	Asp	Arg	Gly	Pro	Asp	Asp	Ala	Val		
			245					250					255				
Asn	Arg	Arg	Ile	Ser	Leu	Leu	Val	Leu	Asn	Lys	Gln	Ala	Glu	Gln	Ala		
		260				265							270				
Ile	Leu	His	Glu	Asn	Ala	Glu	Ser	Gln	Asn	Glu	Pro	Val	Ser	Ala	Leu		
	275					280						285					
Glu	Lys	Pro	Glu	Val	Ala	Pro	Gln	Val	Ser	Val	Pro	Thr	Met	Pro	Ser		
	290					295					300						
Ala	Glu	Pro	Arg														
305																	

<210> 38
 <211> 245
 <212> PRT
 <213> Escherichia coli

<400> 38
 Met Arg Arg Leu Leu Ser Val Ala Pro Val Leu Leu Trp Leu Ile Thr
 1 5 10 15
 Pro Leu Ala Phe Ala Gln Leu Pro Gly Ile Thr Ser Gln Pro Leu Pro
 20 25 30
 Gly Gly Gly Gln Ser Trp Ser Leu Pro Val Gln Thr Leu Val Phe Ile
 35 40 45
 Thr Ser Leu Thr Phe Ile Pro Ala Ile Leu Leu Met Met Thr Ser Phe
 50 55 60
 Thr Arg Ile Ile Ile Val Phe Gly Leu Leu Arg Asn Ala Leu Gly Thr
 65 70 75 80
 Pro Ser Ala Pro Pro Asn Gln Val Leu Leu Gly Leu Ala Leu Phe Leu
 85 90 95
 Thr Phe Phe Ile Met Ser Pro Val Ile Asp Lys Ile Tyr Val Asp Ala
 100 105 110
 Tyr Gln Pro Phe Ser Glu Glu Lys Ile Ser Met Gln Glu Ala Leu Glu
 115 120 125
 Lys Gly Ala Gln Pro Leu Arg Glu Phe Met Leu Arg Gln Thr Arg Glu
 130 135 140
 Ala Asp Leu Gly Leu Phe Ala Arg Leu Ala Asn Thr Gly Pro Leu Gln
 145 150 155 160
 Gly Pro Glu Ala Val Pro Met Arg Ile Leu Leu Pro Ala Tyr Val Thr
 165 170 175
 Ser Glu Leu Lys Thr Ala Phe Gln Ile Gly Phe Thr Ile Phe Ile Pro
 180 185 190
 Phe Leu Ile Ile Asp Leu Val Ile Ala Ser Val Leu Met Ala Leu Gly
 195 200 205
 Met Met Met Val Pro Pro Ala Thr Ile Ala Leu Pro Phe Lys Leu Met
 210 215 220
 Leu Phe Val Leu Val Asp Gly Trp Gln Leu Leu Val Gly Ser Leu Ala
 225 230 235 240
 Gln Ser Phe Tyr Ser
 245

<210> 39
 <211> 375
 <212> PRT
 <213> Escherichia coli

<400> 39
 Met Ile Arg Leu Ala Pro Leu Ile Thr Ala Asp Val Asp Thr Thr Thr
 1 5 10 15
 Leu Pro Gly Gly Lys Ala Ser Asp Ala Gln Asp Phe Leu Ala Leu
 20 25 30
 Leu Ser Glu Ala Leu Ala Gly Glu Thr Thr Thr Asp Lys Ala Ala Pro
 35 40 45
 Gln Leu Leu Val Ala Thr Asp Lys Pro Thr Thr Lys Gly Glu Pro Leu
 50 55 60
 Ile Ser Asp Ile Val Ser Asp Ala Gln Gln Ala Asn Leu Leu Ile Pro
 65 70 75 80

Val Asp Glu Thr Pro Pro Val Ile Asn Asp Glu Gln Ser Thr Ser Thr
 85 90 95
 Pro Leu Thr Thr Ala Gln Thr Met Ala Leu Ala Ala Val Ala Asp Lys
 100 105 110
 Asn Thr Thr Lys Asp Glu Lys Ala Asp Asp Leu Asn Glu Asp Val Thr
 115 120 125
 Ala Ser Leu Ser Ala Leu Phe Ala Met Leu Pro Gly Phe Asp Asn Thr
 130 135 140
 Pro Lys Val Thr Asp Ala Pro Ser Thr Val Leu Pro Thr Glu Lys Pro
 145 150 155 160
 Thr Leu Phe Thr Lys Leu Thr Ser Glu Gln Leu Thr Thr Ala Gln Pro
 165 170 175
 Asp Asp Ala Pro Gly Thr Pro Ala Gln Pro Leu Thr Pro Leu Val Ala
 180 185 190
 Glu Ala Gln Ser Lys Ala Glu Val Ile Ser Thr Pro Ser Pro Val Thr
 195 200 205
 Ala Ala Ala Ser Pro Leu Ile Thr Pro His Gln Thr Gln Pro Leu Pro
 210 215 220
 Thr Val Ala Ala Pro Val Leu Ser Ala Pro Leu Gly Ser His Glu Trp
 225 230 235 240
 Gln Gln Ser Leu Ser Gln His Ile Ser Leu Phe Thr Arg Gln Gly Gln
 245 250 255
 Gln Ser Ala Glu Leu Arg Leu His Pro Gln Asp Leu Gly Glu Val Gln
 260 265 270
 Ile Ser Leu Lys Val Asp Asp Asn Gln Ala Gln Ile Gln Met Val Ser
 275 280 285
 Pro His Gln His Val Arg Ala Ala Leu Glu Ala Ala Leu Pro Val Leu
 290 295 300
 Arg Thr Gln Leu Ala Glu Ser Gly Ile Gln Leu Gly Gln Ser Asn Ile
 305 310 315 320
 Ser Gly Glu Ser Phe Ser Gly Gln Gln Gln Ala Ala Ser Gln Gln Gln
 325 330 335
 Gln Ser Gln Arg Thr Ala Asn His Glu Pro Leu Ala Gly Glu Asp Asp
 340 345 350
 Asp Thr Leu Pro Val Pro Val Ser Leu Gln Gly Arg Val Thr Gly Asn
 355 360 365
 Ser Gly Val Asp Ile Phe Ala
 370 375

<210> 40

<211> 547

<212> PRT

<213> Escherichia coli

<400> 40

Met Ser Ser Leu Ile Asn Asn Ala Met Ser Gly Leu Asn Ala Ala Gln
 1 5 10 15
 Ala Ala Leu Asn Thr Ala Ser Asn Asn Ile Ser Ser Tyr Asn Val Ala
 20 25 30
 Gly Tyr Thr Arg Gln Thr Thr Ile Met Ala Gln Ala Asn Ser Thr Leu
 35 40 45
 Gly Ala Gly Gly Trp Val Gly Asn Gly Val Tyr Val Ser Gly Val Gln
 50 55 60
 Arg Glu Tyr Asp Ala Phe Ile Thr Asn Gln Leu Arg Ala Ala Gln Thr
 65 70 75 80

Gln Ser Ser Gly Leu Thr Ala Arg Tyr Glu Gln Met Ser Lys Ile Asp
 85 90 95
 Asn Met Leu Ser Thr Ser Thr Ser Ser Leu Ala Thr Gln Met Gln Asp
 100 105 110
 Phe Phe Thr Ser Leu Gln Thr Leu Val Ser Asn Ala Glu Asp Pro Ala
 115 120 125
 Ala Arg Gln Ala Leu Ile Gly Lys Ser Glu Gly Leu Val Asn Gln Phe
 130 135 140
 Lys Thr Thr Asp Gln Tyr Leu Arg Asp Gln Asp Lys Gln Val Asn Ile
 145 150 155 160
 Ala Ile Gly Ala Ser Val Asp Gln Ile Asn Asn Tyr Ala Lys Gln Ile
 165 170 175
 Ala Ser Leu Asn Asp Gln Ile Ser Arg Leu Thr Gly Val Gly Ala Gly
 180 185 190
 Ala Ser Pro Asn Asn Leu Leu Asp Gln Arg Asp Gln Leu Val Ser Glu
 195 200 205
 Leu Asn Gln Ile Val Gly Val Glu Val Ser Val Gln Asp Gly Gly Thr
 210 215 220
 Tyr Asn Ile Thr Met Ala Asn Gly Tyr Ser Leu Val Gln Gly Ser Thr
 225 230 235 240
 Ala Arg Gln Leu Ala Ala Val Pro Ser Ser Ala Asp Pro Ser Arg Thr
 245 250 255
 Thr Val Ala Tyr Val Asp Gly Thr Ala Gly Asn Ile Glu Ile Pro Glu
 260 265 270
 Lys Leu Leu Asn Thr Gly Ser Leu Gly Gly Ile Leu Thr Phe Arg Ser
 275 280 285
 Gln Asp Leu Asp Gln Thr Arg Asn Thr Leu Gly Gln Leu Ala Leu Ala
 290 295 300
 Phe Ala Glu Ala Phe Asn Thr Gln His Lys Ala Gly Phe Asp Ala Asn
 305 310 315 320
 Gly Asp Ala Gly Glu Asp Phe Phe Ala Ile Gly Lys Pro Ala Val Leu
 325 330 335
 Gln Asn Thr Lys Asn Lys Gly Asp Val Ala Ile Gly Ala Thr Val Thr
 340 345 350
 Asp Ala Ser Ala Val Leu Ala Thr Asp Tyr Lys Ile Ser Phe Asp Asn
 355 360 365
 Asn Gln Trp Gln Val Thr Arg Leu Ala Ser Asn Thr Thr Phe Thr Val
 370 375 380
 Thr Pro Asp Ala Asn Gly Lys Val Ala Phe Asp Gly Leu Glu Leu Thr
 385 390 395 400
 Phe Thr Gly Thr Pro Ala Val Asn Asp Ser Phe Thr Leu Lys Pro Val
 405 410 415
 Ser Asp Ala Ile Val Asn Met Asp Val Leu Ile Thr Asp Glu Ala Lys
 420 425 430
 Ile Ala Met Ala Ser Glu Glu Asp Ala Gly Asp Ser Asp Asn Arg Asn
 435 440 445
 Gly Gln Ala Leu Leu Asp Leu Gln Ser Asn Ser Lys Thr Val Gly Gly
 450 455 460
 Ala Lys Ser Phe Asn Asp Ala Tyr Ala Ser Leu Val Ser Asp Ile Gly
 465 470 475 480
 Asn Lys Thr Ala Thr Leu Lys Thr Ser Ser Ala Thr Gln Gly Asn Val
 485 490 495
 Val Thr Gln Leu Ser Asn Gln Gln Gln Ser Ile Ser Gly Val Asn Leu
 500 505 510
 Asp Glu Glu Tyr Gly Asn Leu Gln Arg Phe Gln Gln Tyr Tyr Leu Ala

515 520 525
 Asn Ala Gln Val Leu Gln Thr Ala Asn Ala Ile Phe Asp Ala Leu Ile
 530 535 540
 Asn Ile Arg
 545

<210> 41
 <211> 566
 <212> PRT
 <213> *Psuedomonas aeruginosa*

<400> 41
 Met Asn Asp Ser Ile Gln Leu Ser Gly Leu Ser Arg Gln Leu Val Gln
 1 5 10 15
 Ala Asn Leu Leu Asp Glu Lys Thr Ala Leu Gln Ala Gln Thr Gln Ala
 20 25 30
 Gln Arg Asn Lys Leu Ser Leu Val Thr His Leu Val Gln Asn Lys Leu
 35 40 45
 Val Ser Gly Leu Ala Leu Ala Glu Leu Ser Ala Glu Gln Phe Gly Ile
 50 55 60
 Ala Tyr Cys Asp Leu Asn Ser Leu Asp Arg Glu Ser Phe Pro Arg Asp
 65 70 75 80
 Ala Ile Ser Glu Lys Leu Val Arg Gln His Arg Val Ile Pro Leu Trp
 85 90 95
 Arg Arg Gly Asn Lys Leu Phe Val Gly Ile Ser Asp Ala Ala Asn His
 100 105 110
 Gln Ala Ile Asn Asp Val Gln Phe Ser Thr Gly Leu Thr Thr Glu Ala
 115 120 125
 Ile Leu Val Glu Asp Asp Lys Leu Gly Leu Ala Ile Asp Lys Leu Phe
 130 135 140
 Glu Asn Ala Thr Asp Gly Leu Ala Gly Leu Asp Asp Val Asp Leu Glu
 145 150 155 160
 Gly Leu Asp Val Gly Val Lys Glu Thr Ser Gly Gln Glu Asp Thr Gly
 165 170 175
 Ala Glu Ala Asp Asp Ala Pro Val Val Arg Phe Val Asn Lys Met Leu
 180 185 190
 Leu Asp Ala Ile Lys Gly Gly Ser Ser Asp Leu His Phe Glu Pro Tyr
 195 200 205
 Glu Lys Ile Tyr Arg Val Arg Phe Arg Thr Asp Gly Met Leu His Glu
 210 215 220
 Val Ala Lys Pro Pro Ile Gln Leu Ala Ser Arg Ile Ser Ala Arg Leu
 225 230 235 240
 Lys Val Met Ala Gly Leu Asp Ile Ser Glu Arg Arg Lys Pro Gln Asp
 245 250 255
 Gly Arg Ile Lys Met Arg Val Ser Lys Thr Lys Ser Ile Asp Phe Arg
 260 265 270
 Val Asn Thr Leu Pro Thr Leu Trp Gly Glu Lys Ile Val Met Arg Ile
 275 280 285
 Leu Asp Ser Ser Ser Ala Gln Met Gly Ile Asp Ala Leu Gly Tyr Glu
 290 295 300
 Glu Asp Gln Lys Glu Leu Tyr Leu Ala Ala Leu Lys Gln Pro Gln Gly
 305 310 315 320
 Met Ile Leu Val Thr Gly Pro Thr Gly Ser Gly Lys Thr Val Ser Leu
 325 330 335
 Tyr Thr Gly Leu Asn Ile Leu Asn Thr Thr Asp Ile Asn Ile Ser Thr

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          340          345          350
Ala Glu Asp Pro Val Glu Ile Asn Leu Glu Gly Ile Asn Gln Val Asn
          355          360          365
Val Asn Pro Arg Gln Gly Met Asp Phe Ser Gln Ala Leu Arg Ala Phe
          370          375          380
Leu Arg Gln Asp Pro Asp Val Ile Met Val Gly Glu Ile Arg Asp Leu
385          390          395          400
Glu Thr Ala Glu Ile Ala Ile Lys Ala Ala Gln Thr Gly His Met Val
          405          410          415
Met Ser Thr Leu His Thr Asn Ser Ala Ala Glu Thr Leu Thr Arg Leu
          420          425          430
Leu Asn Met Gly Val Pro Ala Phe Asn Leu Ala Thr Ser Val Asn Leu
          435          440          445
Ile Ile Ala Gln Arg Leu Ala Arg Lys Leu Cys Ser His Cys Lys Lys
          450          455          460
Glu His Asp Val Pro Lys Glu Thr Leu Leu His Glu Gly Phe Pro Glu
465          470          475          480
Glu Leu Ile Gly Thr Phe Lys Leu Tyr Ser Pro Val Gly Cys Asp His
          485          490          495
Cys Lys Asn Gly Tyr Lys Gly Arg Val Gly Ile Tyr Glu Val Val Lys
          500          505          510
Asn Thr Pro Ala Leu Gln Arg Ile Ile Met Glu Glu Gly Asn Ser Ile
          515          520          525
Glu Ile Ala Glu Gln Ala Arg Lys Glu Gly Phe Asn Asp Leu Arg Thr
          530          535          540
Ser Gly Leu Leu Lys Ala Met Gln Gly Ile Thr Ser Leu Glu Glu Val
545          550          555          560
Asn Arg Val Thr Lys Asp
          565

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<210> 42

<211> 406

<212> PRT

<213> Psuedomonas aeruginosa

<400> 42

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Met Ala Asp Lys Ala Leu Lys Thr Ser Val Phe Ile Trp Glu Gly Thr
1          5          10          15
Asp Lys Lys Gly Ala Lys Val Lys Gly Glu Leu Thr Gly Gln Asn Pro
          20          25          30
Met Leu Val Lys Ala His Leu Arg Lys Gln Gly Ile Asn Pro Leu Lys
          35          40          45
Val Arg Lys Lys Gly Ile Ser Leu Leu Gly Ala Gly Lys Lys Val Lys
          50          55          60
Pro Met Asp Ile Ala Leu Phe Thr Arg Gln Met Ala Thr Met Met Gly
65          70          75          80
Ala Gly Val Pro Leu Leu Gln Ser Phe Asp Ile Ile Gly Glu Gly Phe
          85          90          95
Asp Asn Pro Asn Met Arg Lys Leu Val Asp Glu Ile Lys Gln Glu Val
          100          105          110
Ser Ser Gly Asn Ser Leu Ala Asn Ser Leu Arg Lys Lys Pro Gln Tyr
          115          120          125
Phe Asp Glu Leu Tyr Cys Asn Leu Val Asp Ala Gly Glu Gln Ser Gly
130          135          140
Ala Leu Glu Asn Leu Leu Asp Arg Val Ala Thr Tyr Lys Glu Lys Thr

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[illegible]

115 120 125
 Thr Trp Gln Ala Gly Ala Met Leu Leu Leu Thr Trp Gly Leu Leu Ala
 130 135 140
 Met Ser Leu Ile Asp Ala Asp His Gln Leu Leu Pro Asp Val Leu Val
 145 150 155 160
 Leu Pro Leu Leu Trp Leu Gly Leu Ile Ala Asn His Phe Gly Leu Phe
 165 170 175
 Ala Ser Leu Asp Asp Ala Leu Phe Gly Ala Val Phe Gly Tyr Leu Ser
 180 185 190
 Leu Trp Ser Val Phe Trp Leu Phe Lys Leu Val Thr Gly Lys Glu Gly
 195 200 205
 Met Gly Tyr Gly Asp Phe Lys Leu Leu Ala Met Leu Gly Ala Trp Gly
 210 215 220
 Gly Trp Gln Ile Leu Pro Leu Thr Ile Leu Leu Ser Ser Leu Val Gly
 225 230 235 240
 Ala Ile Leu Gly Val Ile Met Leu Arg Leu Arg Asn Ala Glu Ser Gly
 245 250 255
 Thr Pro Ile Pro Phe Gly Pro Tyr Leu Ala Ile Ala Gly Trp Ile Ala
 260 265 270
 Leu Leu Trp Gly Asp Gln Ile Thr Arg Thr Tyr Leu Gln Phe Ala Gly
 275 280 285
 Phe Lys
 290

<210> 44
 <211> 185
 <212> PRT
 <213> *Psuedomonas aeruginosa*

<400> 44
 Met Leu Leu Lys Ser Arg His Arg Ser Leu His Gln Ser Gly Phe Ser
 1 5 10 15
 Met Ile Glu Val Leu Val Ala Leu Leu Ile Ser Ile Gly Val Leu
 20 25 30
 Gly Met Ile Ala Met Gln Gly Lys Thr Ile Gln Tyr Thr Ala Asp Ser
 35 40 45
 Val Glu Arg Asn Lys Ala Ala Met Leu Gly Ser Asn Leu Leu Glu Ser
 50 55 60
 Met Arg Ala Ser Pro Lys Ala Leu Tyr Asp Val Lys Asp Gln Met Ala
 65 70 75 80
 Thr Gln Ser Asp Phe Phe Lys Ala Lys Gly Ser Ala Phe Pro Thr Ala
 85 90 95
 Pro Ser Ser Cys Thr Pro Leu Pro Asp Ala Ile Lys Asp Arg Leu Gly
 100 105 110
 Cys Trp Ala Glu Gln Val Lys Asn Glu Leu Pro Gly Ala Gly Asp Leu
 115 120 125
 Leu Lys Ser Asp Tyr Tyr Ile Cys Arg Ser Ser Lys Pro Gly Asp Cys
 130 135 140
 Asp Gly Lys Gly Ser Met Leu Glu Ile Arg Leu Ala Trp Arg Gly Lys
 145 150 155 160
 Gln Gly Ala Cys Val Asn Ala Ala Asp Ser Ser Ala Asp Thr Ser Leu
 165 170 175
 Cys Tyr Tyr Thr Leu Arg Val Glu Pro
 180 185

<210> 45
 <211> 274
 <212> PRT
 <213> Psuedomonas aeruginosa

<400> 45
 Met Ser Met Asn Asn Arg Ser Arg Arg Gln Ser Gly Leu Ser Met Ile
 1 5 10 15
 Glu Leu Leu Val Ala Leu Ala Ile Ser Ser Phe Leu Ile Leu Gly Ile
 20 25 30
 Thr Gln Ile Tyr Leu Asp Asn Lys Arg Asn Tyr Leu Phe Gln Gln Gly
 35 40 45
 Gln Ala Gly Asn Gln Glu Asn Gly Arg Phe Ala Met Met Phe Leu Asp
 50 55 60
 Gln Gln Leu Ala Lys Val Gly Phe Arg Arg Arg Ala Asp Asp Pro Asn
 65 70 75 80
 Glu Phe Ala Phe Pro Ala Gln Gln Lys Thr Ala Tyr Cys Glu Ala Phe
 85 90 95
 Lys Ala Gly Ser Thr Leu Val Pro Ala Val Val Lys Ala Gly Gln Ser
 100 105 110
 Gly Phe Cys Tyr Arg Tyr Gln Pro Ala Pro Gly Glu Ala Tyr Asp Cys
 115 120 125
 Glu Gly Asn Ser Ile Thr Thr Pro Ser Asp Pro Phe Ala Thr Ala Gln
 130 135 140
 Ala Ile Thr Ala Arg Val Leu Phe Val Pro Ala Thr Ala Asp Val Pro
 145 150 155 160
 Gly Ser Leu Ala Cys Ser Ala Gln Thr Ile Lys Glu Lys Gly Gln Glu
 165 170 175
 Ile Val Ser Gly Leu Val Asp Phe Lys Leu Glu Tyr Gly Val Gly Pro
 180 185 190
 Thr Met Ala Gly Lys Arg Glu Val Glu Ser Phe Val Glu Gln Ala Asn
 195 200 205
 Ile Ala Asp Arg Pro Val Arg Ala Leu Arg Tyr Ser Ala Leu Met Ala
 210 215 220
 Ser Asp Lys Asn Leu Arg Gln Gly Asp Ser Lys Thr Leu Asp Asp Trp
 225 230 235 240
 Ile Thr Leu Tyr Pro Ser Ser Lys Thr Ser Leu Gln Gly Asn Asp Lys
 245 250 255
 Asp Arg Leu Tyr Gln Ile Ala Lys Gly Ser Gln Thr Leu Arg Asn Leu
 260 265 270
 Val Pro

<210> 46
 <211> 172
 <212> PRT
 <213> Psuedomonas aeruginosa

<400> 46
 Met Asn Asn Phe Pro Ala Gln Gln Arg Gly Ala Thr Leu Val Ile Ala
 1 5 10 15
 Leu Ala Ile Leu Val Ile Val Thr Leu Leu Ala Val Ser Ser Met Arg
 20 25 30
 Glu Val Val Leu Glu Ser Arg Ile Thr Gly Asn Val Ile Glu Gln Thr
 35 40 45

Arg Leu Gln Asn Ala Ala Glu Ser Gly Leu Arg Glu Gly Glu Arg Arg
 50 55 60
 Phe Val Asn Thr Leu Arg Pro Pro Glu Pro Gly Thr Gly Cys Thr Ala
 65 70 75 80
 Asp Asn Val Ala Arg Pro Cys Leu Leu Asp Leu Ala Ala Leu Asn Leu
 85 90 95
 Lys Leu Ala Asp Thr His Gln Asn Pro Val Gly Val Leu Lys Gly Ile
 100 105 110
 Ala Asn Thr Trp Met Ser Tyr Arg Gly Ser Asp Ile Ser Ser Ala Thr
 115 120 125
 Thr Ala Gly Asn Ala Leu Gln Arg Ala Val Glu Gln Pro Ala His Ser
 130 135 140
 Leu Gly Arg Pro Gly Gln Arg Ser Gly Lys Pro Arg Ile Arg Gln Pro
 145 150 155 160
 Asp Ala Arg His Arg His Leu Leu Leu Arg Asp Gln
 165 170

<210> 47
 <211> 1161
 <212> PRT
 <213> *Psuedomonas aeruginosa*

<400> 47
 Met Arg Gly Ile Gly Thr Phe Tyr Tyr Glu Thr Asn Ser Val Ala Arg
 1 5 10 15
 Asn Gln Thr Asn Ser Glu Thr Val Leu Gln Thr Val Ala Arg Pro Ser
 20 25 30
 Leu Tyr Gln Leu Ile Glu Pro Arg Met Lys Ser Val Leu His Gln Ile
 35 40 45
 Gly Lys Thr Ser Leu Ala Ala Ala Leu Ser Gly Ala Val Leu Leu Ser
 50 55 60
 Ala Gln Thr Thr His Ala Ala Ala Leu Ser Val Ser Gln Gln Pro Leu
 65 70 75 80
 Met Leu Ile Gln Gly Val Ala Pro Asn Met Leu Val Thr Leu Asp Asp
 85 90 95
 Ser Gly Ser Met Ala Phe Ala Tyr Ala Pro Asp Ser Ile Ser Gly Tyr
 100 105 110
 Gly Asn Tyr Thr Phe Phe Ala Ser Asn Ser Phe Asn Pro Met Tyr Phe
 115 120 125
 Asp Pro Asn Thr Gln Tyr Lys Leu Pro Lys Lys Leu Thr Leu Val Asn
 130 135 140
 Gly Gln Val Gln Ile Gln Asp Tyr Pro Ala Pro Asn Phe Ser Ser Ala
 145 150 155 160
 Trp Arg Asn Gly Phe Thr Arg Arg Gly Ser Ile Asn Leu Ser Asn Ser
 165 170 175
 Tyr Lys Val Thr Ile Glu Tyr Gly Arg Gly Tyr Asp Lys Glu Ser Thr
 180 185 190
 Ile Lys Ala Asp Ala Ala Tyr Tyr Tyr Asp Phe Thr Gly Ser Ser Ser
 195 200 205
 Trp Asn Arg Thr Asn Gln Ala Cys Tyr Thr Arg Arg Tyr Val Ser Thr
 210 215 220
 Glu Gln Arg Gln Asn Phe Ala Asn Trp Tyr Ser Phe Tyr Arg Thr Arg
 225 230 235 240
 Ala Leu Arg Thr Gln Thr Ala Ala Asn Leu Ala Phe Phe Arg Leu Pro
 245 250 255

Glu Asn Ala Arg Val Ser Trp Gln Leu Leu Asn Asp Ser Asn Cys Asn
 260 265 270
 Gln Met Gly Ser Gly Ser Arg Leu Arg Gln Leu Phe Gln Gln Leu Ser
 275 280 285
 Thr Gly Leu His Arg Ser Thr Ala Gly Glu Leu Leu Gln Leu Ala Gly
 290 295 300
 Lys Thr Phe Gly Gln Trp Trp Tyr Ala Leu Arg Gln Ala Met Thr Arg
 305 310 315 320
 Glu Ala Ser Phe Ser Arg Arg Pro Ala Ser Asn Gly Pro Tyr Ala Tyr
 325 330 335
 Arg Pro Gly Thr Gln Thr Ala Pro Glu Tyr Ser Cys Arg Gly Ser Tyr
 340 345 350
 His Ile Leu Met Thr Asp Gly Leu Trp Asn Asn Asp Ser Ala Asn Val
 355 360 365
 Gly Asn Ala Asp Ser Thr Ala Arg Asn Leu Pro Asp Gly Lys Ser Tyr
 370 375 380
 Ser Ser Gln Thr Pro Tyr Arg Asp Gly Thr Phe Asp Thr Leu Ala Asp
 385 390 395 400
 Gln Ala Phe His Tyr Trp Ala Thr Asp Ala Arg Pro Asp Ile Asp Asp
 405 410 415
 Asn Ile Lys Pro Tyr Ile Pro Tyr Pro Asp Gln Asp Asn Pro Ser Gly
 420 425 430
 Glu Tyr Trp Asn Pro Arg Asn Asp Pro Ala Ile Trp Gln His Met Val
 435 440 445
 Thr Tyr Thr Leu Gly Leu Gly Leu Asn Thr Ser Leu Thr Ser Pro Arg
 450 455 460
 Trp Glu Gly Ser Thr Phe Ser Gly Gly Tyr Asn Asp Ile Val Ala Gly
 465 470 475 480
 Asn Leu Ser Trp Pro Arg Ala Ser Asn Asn Asp Ser Asn Asn Val Tyr
 485 490 495
 Asp Leu Trp His Ala Ala Val Asn Ser Arg Gly Glu Phe Phe Ser Ala
 500 505 510
 Asp Ser Pro Asp Gln Leu Val Ala Ala Phe Gln Asp Ile Leu Asn Arg
 515 520 525
 Ile Ser Gly Lys Asp Leu Pro Ala Ser Arg Pro Ala Ile Ser Ser Ser
 530 535 540
 Leu Gln Glu Asp Asp Thr Gly Asp Lys Leu Thr Arg Phe Ala Tyr Gln
 545 550 555 560
 Thr Ser Phe Ala Ser Asp Lys Asn Trp Ala Gly Asp Leu Thr Arg Tyr
 565 570 575
 Ser Leu Thr Thr Gln Asp Lys Ala Thr Val Gln Thr Asn Leu Trp Ser
 580 585 590
 Ala Gln Ser Ile Leu Asp Ala Met Pro Asn Gly Gly Ala Gly Arg Lys
 595 600 605
 Ile Met Met Ala Gly Ser Gly Thr Ser Gly Leu Lys Glu Phe Thr Trp
 610 615 620
 Gly Ser Leu Ser Ala Asp Gln Gln Arg Lys Leu Asn Arg Asp Pro Asp
 625 630 635 640
 Arg Asn Asp Val Ala Asp Thr Lys Gly Gln Asp Arg Val Ala Phe Leu
 645 650 655
 Arg Gly Asp Arg Arg Lys Glu Asn Ser Asp Asn Phe Arg Thr Arg Asn
 660 665 670
 Ser Ile Leu Gly Asp Ile Ile Asn Ser Ser Pro Ala Thr Val Gly Lys
 675 680 685
 Ala Gln Tyr Leu Thr Tyr Leu Ala Gln Pro Ile Glu Pro Ser Gly Asn

690 695 700
 Tyr Ser Thr Phe Ala Glu Ala Gln Lys Thr Arg Ala Pro Arg Val Tyr
 705 710 715 720
 Val Gly Ala Asn Asp Gly Met Leu His Gly Phe Asp Thr Asp Gly Asn
 725 730 735
 Glu Thr Phe Ala Phe Ile Pro Ser Ala Val Phe Glu Lys Leu His Lys
 740 745 750
 Leu Thr Ala Arg Gly Tyr Gln Gly Gly Ala His Gln Phe Tyr Val Asp
 755 760 765
 Gly Ser Pro Val Val Ala Asp Ala Phe Phe Gly Gly Ala Trp His Thr
 770 775 780
 Val Leu Ile Gly Ser Leu Arg Ala Gly Gly Lys Gly Leu Phe Ala Leu
 785 790 795 800
 Asp Val Thr Asp Pro Ala Asn Ile Lys Leu Leu Trp Glu Ile Gly Val
 805 810 815
 Asp Gln Glu Pro Asp Leu Gly Tyr Ser Phe Pro Lys Pro Thr Val Ala
 820 825 830
 Arg Leu His Asn Gly Lys Trp Ala Val Val Thr Gly Asn Gly Tyr Ser
 835 840 845
 Ser Leu Asn Asp Lys Ala Ala Leu Leu Ile Ile Asp Leu Glu Thr Gly
 850 855 860
 Ala Ile Thr Arg Lys Leu Glu Val Thr Gly Arg Thr Gly Val Pro Asn
 865 870 875 880
 Gly Leu Ser Ser Leu Arg Leu Ala Asp Asn Asn Ser Asp Gly Val Ala
 885 890 895
 Asp Tyr Ala Tyr Ala Gly Asp Leu Gln Gly Asn Leu Trp Arg Phe Asp
 900 905 910
 Leu Ile Ala Gly Lys Val Asn Gln Asp Asp Pro Phe Ser Arg Ala Asn
 915 920 925
 Asp Gly Pro Thr Val Ala Ser Ser Phe Arg Val Ser Phe Gly Gly Gln
 930 935 940
 Pro Leu Tyr Ser Ala Val Asp Ser Ala Gly Ala Ala Gln Ala Ile Thr
 945 950 955 960
 Ala Ala Pro Ser Leu Val Arg His Pro Thr Arg Lys Gly Tyr Ile Val
 965 970 975
 Ile Phe Gly Thr Gly Lys Tyr Phe Glu Asn Ala Asp Ala Arg Ala Asp
 980 985 990
 Thr Ser Arg Ala Gln Thr Leu Tyr Gly Ile Trp Asp Gln Gln Thr Lys
 995 1000 1005
 Gly Glu Ala Ala Gly Ser Thr Pro Arg Leu Thr Arg Gly Asn Leu Gln
 1010 1015 1020
 Gln Gln Thr Leu Asp Leu Gln Ala Asp Ser Thr Phe Ala Ser Thr Ala
 1025 1030 1035 104
 Arg Thr Ile Arg Ile Gly Ser Gln Asn Pro Val Asn Trp Leu Asn Asn
 1045 1050 1055
 Asp Gly Ser Thr Lys Gln Ser Gly Trp Tyr Leu Asp Phe Met Val Asn
 1060 1065 1070
 Gly Thr Leu Lys Gly Glu Met Leu Ile Glu Asp Met Ile Ala Ile Gly
 1075 1080 1085
 Gln Val Val Leu Leu Gln Thr Ile Thr Pro Asn Asp Asp Pro Cys Ala
 1090 1095 1100
 Asp Gly Ala Ser Asn Trp Thr Tyr Gly Leu Asp Pro Tyr Thr Gly Gly
 1105 1110 1115 112
 Arg Thr Arg Phe Thr Val Phe Asp Leu Gly Arg Gln Gly Val Val Gly
 1125 1130 1135

Leu Glu Ile Arg Leu Thr Gly Thr Thr Arg Arg Asn Val Gly Asn Pro
 1140 1145 1150
 Val Pro Ser Arg Lys Ala Trp Glu Ala
 1155 1160

<210> 48
 <211> 115
 <212> PRT
 <213> Psuedomonas aeruginosa

<400> 48
 Met Lys Val Leu Pro Met Leu Leu Ala Leu Ala Val Pro Gly Leu Cys
 1 5 10 15
 Trp Ala Glu Asp Pro Gln Thr Phe Glu Gly Ala Gly Val Val Phe Glu
 20 25 30
 Val Gln Val Glu Lys Asn Leu Val Asp Ile Asp His Arg Leu Tyr Arg
 35 40 45
 Leu Pro Asn Ser Thr Val Arg Asn Gly Met Pro Ser Leu Phe Gln Val
 50 55 60
 Lys Pro Gly Ser Val Val Ser Tyr Ser Gly Thr Val Ser Gln Pro Trp
 65 70 75 80
 Ser Thr Ile Thr Asp Ile Tyr Ile His Lys Gln Met Ser Glu Gln Glu
 85 90 95
 Leu Ala Glu Met Ile Glu Lys Glu Gln Pro Arg Gln Asp Gly Glu Glu
 100 105 110
 Gln Pro Arg
 115

<210> 49
 <211> 141
 <212> PRT
 <213> Psuedomonas aeruginosa

<400> 49
 Met Arg Thr Arg Gln Lys Gly Phe Thr Leu Leu Glu Met Val Val Val
 1 5 10 15
 Val Ala Val Ile Gly Ile Leu Leu Gly Ile Ala Ile Pro Ser Tyr Gln
 20 25 30
 Asn Tyr Val Ile Arg Ser Asn Arg Thr Glu Gly Gln Ala Leu Leu Ser
 35 40 45
 Asp Ala Ala Ala Arg Gln Glu Arg Tyr Tyr Ser Gln Asn Pro Gly Val
 50 55 60
 Gly Tyr Thr Lys Asp Val Ala Lys Leu Gly Met Ser Ser Ala Asn Ser
 65 70 75 80
 Pro Asn Asn Leu Tyr Asn Leu Thr Ile Ala Thr Pro Thr Ser Thr Thr
 85 90 95
 Tyr Thr Leu Thr Ala Thr Pro Ile Asn Ser Gln Thr Arg Asp Lys Thr
 100 105 110
 Cys Gly Lys Leu Thr Leu Asn Gln Leu Gly Glu Arg Gly Ala Ala Gly
 115 120 125
 Lys Thr Gly Asn Asn Ser Thr Val Asn Asp Cys Trp Arg
 130 135 140